ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. III. APRIL, 1892. No. 4.

CONTENTS:

Horn—Dorcus parallelus..... 73
Wright—In Alaska..... 74
Laurent—Preparatory stages of Pamphila manataaqua..... 77
Cockerell—Notes on the life-history of Calpodes ethlius..... 78
Townsend—New N. Am. Tachinidæ.... 80
Smith—Elementary Entomology..... 82
Angell—Two n. sp. of Coleoptera..... 84
Williston—Notes on the habits of Ammophila..... 85
McKnight—Lepidoptera of the Adirondack Region..... 87
Patton—Notes upon Larradæ..... 89
Harvey—Odonata of Maine..... 91
Notes and News..... 93
Entomological Literature..... 98
Doings of Societies..... 103

Dorcus parallelus Say.

By GEO. H. HORN, M. D.

The plate forming the frontispiece of this number has been prepared from material which, for the most part, belongs to the American Entomological Society. The reasons for presenting it are: to settle finally the relationship existing between the names *parallelus*, *costatus* and *brevis*, now in our lists—to illustrate the possibilities of variation in form and sculpture, and, finally, to ascertain by experiment the adaptability of the various photo-plate processes for illustrations taken from the objects themselves. Periodically the question is discussed, what is *Dorcus brevis*, and is it distinct from *parallelus?* It need hardly be said that this question arises principally among those young in experience and with small series, although species are frequently described as new with far less claim to distinctness than the extreme specimens on the upper row. *D. brevis* is founded on males of full development, broad thorax and smooth surface. The first two figures accurately represent Say's idea. As a rule the males have quite a smooth thorax, while the females are rather closely punctate. In the *brevis* form the elytra are also quite smooth, but the transi-

tion from this to the striate sculpture is gradual, and can readily be traced even in the plate. *D. costatus*, although merely a catalogue name, is based on those females in which three of the intervals on each elytron are a little wider and more prominent, as faintly shown on the fifth figure in the second row. The terminal figure is an exceptionally small female collected by Mr. Henry Wenzel. The six specimens on the upper row and two on the lower are males, as will be known by the more prominent mandibles with a tooth on the upper side. Regarding the possibilities of variation, the plate shows for itself, although far less than the specimens themselves, and *Dorcus parallelus* is by no means a good species for the illustration of varietal possibilities. The use of any photographic method usually causes a loss of some detail, but when form alone is to be illustrated more accurate results for comparison can be obtained.

———o———

IN ALASKA.

By W. G. WRIGHT, San Bernardino, Cal.

One might suppose that a trip to Alaska would afford an entomologist abundant material for collecting, and that he might write a book about what he saw through his entomological glasses, and experienced in pursuit of his pet hobby. But having made the trip, I am obliged to say that the results, both actual and theoretical, were very meagre.

To begin with, the country from the Strait of San Juan de Fuca to Yakatat Bay is all of a piece. The ground is all solid rock, if I may so speak, islands and mainland alike, and the channels through which the steamer sails most of the way are mere cracks in the hard, black rock, some of them so deep that it is impracticable to anchor in them. How a tree can manage to find root-hold upon such solid rock is a continual mystery, but they do, and the whole country, whether level or side-hill (and most of it is tilted up an angle frequently acute), is covered with the same endless ranks of sombre fir trees, the very sight of which at length becomes a weariness; and the trees, with horizontal limbs down to the ground, come clear down to the water's edge, so that a landing becomes a difficulty. The Japan current, or some other cause, gives to Sitka about the same temperature as

at Victoria. To that current the whole coast from Yakatat Bay to the Columbia River owes a liberal allowance of fog and misty rain, more at the North and less at the South, but otherwise the thousand miles of northing from Puget Sound gives no notable climatic difference. Therefore, it is easy to see that, with the same geological formation, the same flora, and the same climate, the same fauna must prevail; and so I have found it. So far as my insect captures are determined I did not get a specimen in Alaska but what is found about Puget Sound in greater abundance than in Alaska. One *Pieris*, from Sitka, bears another name from those of Puget Sound, but I regard it as the same species; I will "lump" that much. The country inland is well-nigh impenetrable, being, as I have said, mostly up edgewise, and sometimes almost to the perpendicular, and densely wooded; and underneath, a network of fallen trees thickly covered with sphagnum or moss, which apparently never gets dried out, because of the rain and the dense shade. Five miles a day is good traveling through these thickets. There are no clearings or ranches, or farms; no room for a butterfly to stretch its wings. In Coleoptera it is as bad. I got one *Cychrus marginatus* at Metlakahtla, and one at Loring, and a pair of *C. angusticollis* at Junean, but nothing of interest anywhere.

Wrangel is a green spot in my memory, because there I got my first Alaskan butterflies. To be sure they were only a common *Pieris*, but it is noteworthy to get any butterflies in such a rainy country. These poor Pierids were nearly starved by the long season of rain, and were crawling about upon an umbel of *daucus* trying to feed; they could not fly, because of the rain, so I picked them off the flowers with my fingers, and took them in out of the wet. Numbers of little geometrid moths were flying about, but I had no net out in the rain, so I did not get them. I met here, by chance the usual way, an eastern naturalist who was skinning birds. He told me that he had seen in the vicinity one specimen of *Limenitis Lorquini*. From that item we may set down Fort Wrangel as the northern limit of that species.

About the town of Junean I caught a lot of Pierids, of the same old species, but no other butterfly was seen. Then I followed a mining road out into the country as far as time would permit, but found nothing else. By the roadside lay some pine blocks left by the axe-men. Under one of these I found the fine

pair of *C. angusticollis* before spoken of, but no other beetles worth naming.

Chillkat is the most northern of all the stopping places on this Alaskan route; it is close to the 60th degree of North latitude. Here is a narrow grassy border along a moraine, and at the shore line, and I forthwith went ashore with my net. A half dozen Pierids were taken and then came a lull. Presently I began to sweep the grass for beetles, and lo! some Pterophoridæ. So I spent most of the time in getting that little thing, of which there seemed to be several species. This was the most unexpected find of the whole trip.

At Sitka I remained sixteen days, seven of which were mostly sunny, a remarkable thing, as the people told me, as sunny days are exceptional there. One species of *Pieris* was common about the streets, *P. Bryonæ*. One gentleman excited my curiosity by saying that the real Japan silk-worm moth was found there, and so one day he showed me the "moth" flying about his cabbage plants; it was this *Pieris*. I was also informed that this same butterfly was found all along the vast chain of Aleutian Islands, nearly to Siberia, in great numbers; that it feeds on honey-dew, which is found on the leaves and twigs of Alder bushes, and that he had seen the bushes white from the abundance of the butterfly; all of which is credible. But about Sitka I found butterflies very scarce. Beside this *Pieris*, I got only one other species, *Chryso. helloides*, small in size, and almost black. The female, especially, was so dark I could hardly believe it was that species, but the male was rather more like the Southern form, and showed the violet gloss faintly [*Chrys. florus?*—ED.]

Near Sitka, a few miles back, is a mountain, Mt. Verstovia, 3600 feet high. One fine day I climbed this mountain to above timber line; here, at 3500 feet altitude, to see if a *Parnassius* or a *Chionobas* could not be found. Upon the alpine slopes above timber line was a most lovely butterfly place. Some old snow-banks yet remained here and there, but on many of the drier slopes grass and flowers grew luxuriantly, and the air was so mild, and the sun shone so delightfully, that it seemed as if there must be a dozen *Parnassius*' in sight at any moment, but not one did I see; not a butterfly of any color. I never felt so disgusted and discouraged in my life before. I just gave a big growl of displeasure, and threw down my net and other butterfly traps in

anger, and went off to a snow-bank and ate snow, and tried to eat the waxen white blossoms of a heather which grew all about; but it all didn't pay, so I came back to where the guide was lolling on a dry bank by a spring, and ate lunch with him instead. After that I felt better, but not to this day have I regained my serenity of mind as to the outcome of that day's work. Every thing was so favorable, so promising, and the possibilities so great, and not even one poor little butterfly to bless myself with; it was too bad.

North of the great chain of Aleutian Islands, about Norton Sound, and even north of Bering Strait, and under the icy zone of the Arctic Circle, at Kotzebue Sound, it appears that more butterflies are found than at Sitka, because the islands deflect the Japan current to the east and south, so that the more northern regions mentioned are more free from the fog and rain than Sitka is. But even Kotzebue Sound is not a good field for the entomologist, and if any enthusiast should desire to go there, my advice would be, "don't."

Preparatory Stages of Pamphila manataaqua.

By PHILIP LAURENT, Phila., Pa.

On June 24, 1891, I secured two female *Pamphila manataaqua*, which I placed in a small cage containing a piece of grass sod; during the night nine eggs were laid. The eggs are hemispherical in shape, excepting that the apex is somewhat flattened. In color the eggs are of an opaque-white with a greenish tinge. When observed with the naked eye the egg appears to be smooth, but observed through a glass of ordinary power it will be seen that the egg is covered with minute depressions. On July 8th the young larvæ emerged from the egg. The larvæ are slender and more cylindrical than those of most *Pamphila*. In color they are the same as the egg, excepting the head, which is of a dark brown color. The head, when observed through a strong glass, is found to have a corrugated appearance. On the upper part of first segment immediately back of the head, a narrow band of dark brown is observed. July 25th: Larvæ are now about a half inch in length; the body is of a dark or oil-green color, while the head still remains brown, but of a lighter shade than when first observed.

August 2d: Larvæ are now about three-quarters of an inch in length. On examining the larvæ with a strong glass, it will be seen that the larvæ are covered with numerous irregular spots of a dark lavender color; the body is also seen to be thinly covered with hair, that on the sides of larvæ being somewhat longer than that on the top.

August 13th: Larvæ are now full grown, and are about one inch in length. In appearance there has been but little change since August 2d, excepting in the fore feet, which are now dark brown instead of light brown.

August 14th: The first larva changed to chrysalis to-day. The chrysalis is of a greenish white color, the space occupied by head and thorax, and wing-cases being somewhat darker than the abdomen. The eye space is very prominent; the tongue case is of a light brown color and extends almost to the tip of abdomen. The chrysalis is fastened among the grass stalks, and is dusted over with a white silky powder.

Aug. 20th: The last of the larvæ changed to a chrysalis to-day.

August 29th: The first imago emerged to-day a male.

August 30th: Another male appeared.

September 1st, two males; September 2d, one female; September 3d, one male. The others are probably dead.

At no time was I able to discover the exact time of moulting, or could I ever find any of the remains of cast-off larva skins; it may be that the larvæ devour the cast-off skins, but of this I am not certain, so much of their life is spent in the little grass houses that they construct for themselves, that it is hard to keep an eye on them at all times. I thought perhaps the moulting took place within these houses, but was never able to find any cast-off skins within them.

———o———

Notes on the Life-history of Calpodes ethlius.

By T. D. A. Cockerell, Kingston, Jamaica.

Mr. Scudder, in his "Butterflies of New England," p. 1750, gives an interesting account of this species; a description of the mature larva and pupa has also been published by the present writer in the "Journal of the Institute of Jamaica," No. 1, p. 29. Mr. I. I. Bowrey has kindly supplied me with eggs found on *Canna* in his garden in Kingston, from which I have obtained

the young larvæ. Very many of the eggs never produce larvæ, but fall victims to a small hymenopterous parasite. This was first observed by Mr. Bowrey, and is specially interesting, because hitherto no parasite of *C. ethlius* seems to have been recorded. I have not very carefully examined these egg parasites, but they are evidently of the genus *Trichogramma*, or closely allied thereto. A specimen, compared with Riley's figure of *T. pretiosa*, has a broader head, and the thorax is larger in proportion to the abdomen (my specimen is probably a male); the upper wings are apparently more truncate, and the lower seem more slender. With the *Trichogramma* I found a broken specimen of a different Chalcid, with a broad abdomen about a third longer than wide, a thorax much the same size and shape, wings stretching considerably beyond the tip of the abdomen, submarginal vein rather stout, marginal curved away from the costa, stigmal long, with a distinct, though small knob, last pair of legs very long, stretching beyond the tips of closed wings. These notes, although so fragmentary, may serve for comparison with parasites of *C. ethlius* that may be found elsewhere. Certainly, these egg parasites do much towards keeping down the *Canna* butterfly in Jamaica. The *Trichogramma* is the important one; whether the other species is common remains to be seen. Eggs of *C. ethlius* brought to me by Mr. Bowrey on Oct. 24, 1891, were laid singly on a leaf of *Canna*.* They are, as stated by Dr. Wittfield, plainly visible. The egg is rounded, in section forming rather more than half a circle, smooth, shiny, opaque, with fine impressed microscopic punctures or lines, but no ribs. Diameter 1¼ mm., color white, with a purple-gray tinge, especially above. The egg-shell is white after the exclusion of the larva. The lately-hatched larva is 4 mm. long, and rests on the underside of the leaf, near the edge, which it bends by spinning a transverse thread 4 mm. long. It is pale green (Scudder says pale yellowish brown) with a black shiny head, which has a deep longitudinal sulcus on the crown. Thoracic shield black; body with only a few very short and inconspicuous hairs. The shape is cylindrical, with a large head; different from *P. zabulon* as figured by French. On November 3d the larva was 13 mm. long, cylindrical, looking

* On the same leaf I found the eggs of an unknown moth; these are smaller, and laid in a group of eighty or more, very regularly in rows, equidistant, no two eggs touching, They have about twenty-four well-marked ribs. The larvæ proved to be looping Noctuids, but the imago was not reared.

quite like a Pyralid. Head now brown instead of black, but the narrow thoracic shield black; body pale glaucous-green; dorsal vessel showing as a darkish line. Each segment has several transverse grooved striæ or wrinkles dorsally. There is very little variation in the imago so far as Jamaican examples are concerned. In a series obtained by Mr. Bowrey I find the expanse varying from 53 to 61 mm. The largest vitreous spot on the fore-wing is often subquadrate, as described by Scudder, but often elongate, considerably longer than broad. Mr. Scudder calls this "The Brazilian Skipper," but the *Canna* butterfly, or *Canna* Skipper, would be a more appropriate name.

NEW NORTH AMERICAN TACHINIDÆ.

By C. H. Tyler Townsend, Las Cruces, N. Mex.

The following are descriptions of South Florida and Jamaica forms, collected respectively by Mr. Charles Robertson, of Carlinville, Ill., and Mr. Charles W. Johnson, of the Wagner Institute, Philadelphia.

Blepharipeza nigrisquamis n. sp. ♂.—Eyes brown; frontal vitta blackish brown; face, cheeks, and sides of front silvery white pollinose, darker in some lights; facial ridges bristly half way up, sides of face bare, except for descending frontal bristles; antennæ and arista black, third antennal joint about three times as long as the somewhat elongate second; proboscis black, labella large, brown; palpi rather stout, bristly, rufous, blackish at base; occiput silvery, gray-hairy. Thorax purplish black, faintly silvery pollinose, with four narrow black vittæ interrupted at suture, the outer pair more so than the inner pair; scutellum black, very bristly. Abdomen wholly dense black, with a bluish or purplish reflection, thickly set with macrochætæ. Legs black, claws and pulvilli a little elongate, pulvilli tawny. Wings grayish hyaline, broadly and abruptly black at base; tegulæ and alulæ black, halteres brownish. Length of body, 9 mm.; of wing, nearly 9 mm.

Described from one specimen; Portland, Jamaica, April (C. W. Johnson). This species differs from *B. leucophrys* in its smaller size, blacker bases of wings, and somewhat stouter palpi.

Pachyophthalmus floridensis n. sp. ♂.—Eyes brown; frontal vitta nearly black, velvety, narrow, about one-third width of front, front about one-fifth width of head; frontal bristles in double row; sides of front, face, and cheeks silvery whitish, with slight brassy tinge on front; vibrissæ distinct, decussate; antennæ black, third joint hardly one and a half times as long as second, arista black; proboscis brownish, palpi blackish; occiput cinereous. Thorax and scutellum silvery cinereous, with three broad

black vittæ, which are continued over scutellum. Abdomen shining black, anal segment rufous, whole abdomen clouded with silvery cinereous, giving the appearance of three broad, irregular, blackish vittæ, interrupted at the sutures; first two segments with a lateral pair and a median marginal pair of macrochætæ, third and anal with a marginal row. Legs black, femora silvery cinereous, claws and pulvilli short. Wings slightly grayish, nearly hyaline; tegulæ whitish, halteres light brownish. Length of body, 5 mm.; of wing, 4 mm.

Described from one specimen; So. Florida (Robertson).

Hiltogramma decisa n. sp. ♀.—Eyes reddish brown; front brassy golden; less than one-third width of head, the frontal vitta nearly obsolete in front; two orbital bristles; face and cheeks pure silvery white; antennæ pale rufous, third joint one and a half times as long as second, arista blackish; vibrissæ distinct, decussate; proboscis black, palpi rufous (so far as can be seen); occiput cinereous, short and sparsely bristly. Thorax cinereous, silvery pollinose, with three narrow median vittæ and a heavier outside one; scutellum more or less cinereous. Abdomen shining black, first segment on sides and second segment entirely, except triangle in middle, rufous; bases of segments two to four silvery white pollinose; first segment without macrochætæ, second with a median marginal pair, third with a lateral pair and a median marginal pair, and with a marginal row. Legs black, front femora silvery on outside, claws and pulvilli very short. Wings grayish hyaline, tegulæ white, halteres brownish. Length of body, 4½ mm.; of wing, 3½ mm.

Described from one specimen; So. Florida (Robertson).

Anisia vanderwulpi n. sp. ♂ (?).—Eyes cinnamon brown; frontal vitta velvet blackish brown; sides of front and orbital margins of occiput brassy golden; two orbital bristles; face and cheeks silvery white; antennæ rufous, the third joint brownish distally and on front edge, arista brownish; proboscis brownish, short, fleshy, labella large, pale tawny, palpi pale tawny; occiput silvery, gray-hairy below. Thorax silvery white pollinose, with four blackish vittæ, the outer ones heavier and interrupted at suture, humeri and pleuræ silvery white; scutellum silvery white pollinose. Abdomen black, more or less silvery white pollinose, but particularly so at bases of segments and more broadly on vertex, terminal portion of anal segment pale rufous; first two segments with a lateral macrochætæ and a median marginal pair, the second segment with a median discal pair also; third with a median discal pair, and a marginal row of about ten; anal segment with a marginal and discal row of about eight, those in discal row strongest. Legs black, coxæ and distal inferior half of femora light rufous, femora more or less silvery; claws and pulvilli short, pulvilli whitish. Wings grayish hyaline, tegulæ transparent like isinglass, halteres yellow. Length of body, 6 mm.; of wing, 5¼ mm.

Described from one specimen; Portland, Jamaica (C. W. Johnson).

(To be continued.)

ELEMENTARY ENTOMOLOGY.

LEPIDOPTERA–HETEROCERA (Moths).

By Prof. JOHN B. SMITH, New Brunswick, N. J.

The first of the Heterocerous families is the Sphingidæ. This family comprises moths of rather large size, the thorax robust, the abdomen elongate and tapering in most cases, and usually considerably exceeding the anal angle of the secondaries. The head is well developed as a rule, and the antennæ are usually fusiform and more or less prismatic; that is to say, they are rather thicker in the middle and taper both to base and tip, more so toward the tip, which is generally furnished with a little recurved hook. The prismatic shape is usually quite marked in the species, and is a peculiarity of the family. The primaries, or fore-wings, are rather long and narrow in most cases, often more or less evidently lanceolate, the secondaries or hind wings proportionately quite small and narrow. As a whole, the wings are small, compared with the bulk of the insect. The venation throughout the family is quite constant. The primaries may have eleven or twelve veins, according as 9 is, or is not branched near its tip. The entire subcostal series is crowded closely to the costa, so that it is difficult to follow the course of all after vein 7. Vein 5 is nearly midway between 4 and 6, and the cell is closed in those species known to me. Vein 1, the submedian or internal vein, is furcate at base.

On the secondaries the costal and subcostal arise independently from the base and run separately to their termination, joined, however, near the base by an oblique cross-vein, which is characteristic of the family. Here also vein 5 is from near the middle of the cross-vein, and there are two internal veins.

The larvæ of the Sphingidæ are as easily recognizable as the imagos by the curved spine or horn on the top of the terminal segment. In the species in which this horn is wanting there is a shiny tubercle or knob, occupying the position of the more usual process. The pupation is subterranean in most cases.

Compact as is the family in general appearance and main structural features, it divides readily into a number of well marked subfamilies.

The Macroglossinæ are easily distinguished by the rather ob-

viously clubbed tip of the antenna. They retain their prismatic form and the little recurved hook, but are not fusiform. This subfamily contains the clear-winged forms, *Hemaris*, and a small series of opaque-winged species which have short, broad fore-tibiæ, armed at tip with long stout claws, *Lepisesia*. The species are largely diurnal in habit, flying swiftly in the bright sunshine and hovering over the flowers, on the nectar of which they feed. The tongue is well developed, and often nearly as long as the insect itself.

The Chœrocampinæ have the antennæ more or less distinctly fusiform, and the tongue well developed, often longer than the body. There is a tendency to a bright, banded maculation, the abdomen is often tufted, and the fore-wings have the outer margin sinuate or angulate. In *Enyo* the thorax also is crested. It is in this family that the larvæ often have a knob or tubercle instead of the usual horn. Many of the species are diurnal, as in the preceding subfamily, and they are often as swift of flight.

The Sphinginæ all have fusiform antennæ, and usually a long tongue. In some of our species this organ is from six to eight inches in length, and from that it dwindles until it becomes obsolete in *Ellema*. The fore-wings are narrow and lanceolate, and the markings are longitudinally strigose, not banded. They are usually crepuscular, flying at twilight, and from their darting motions and their habit of hovering over the food-plant, the term "Hawk Moths" has been derived.

The Smerinthinæ are quite different in many respects. The tongue is obsolete, unless for feeding in all forms, the antennæ are often serrated, and sometimes pectinated, and the primaries are often quite broad and usually angulated or dentate. In *Cressonia* the male antennæ have two branches to each joint, as in the Saturniidæ.

A brief statement of subfamily differences is as follows.

Antennæ distinctly clubbed at tip	**Macroglossinæ.**
Antennæ not distinctly clubbed, usually fusiform.	
Tongue long and strong.	
Primaries with outer margin sinuate or angulate .	**Chœrocampinæ.**
Primaries with outer margin even	♀ **Sphinginæ.**
Tongue weak and short.	
Primaries with outer margin even	♂ **Sphinginæ.**
Primaries angulated or dentate	**Smerinthinæ.**

TWO NEW SPECIES OF COLEOPTERA.

By G. W. J. ANGELL.

Corymbites Weidtii sp. nov.—Elongate oval, dark metallic bronze, with greenish or crimson lustre; third joint of antennæ shorter and narrower than fourth. Head strongly and densely punctate, with an occipital fovea. Thorax very convex and distinctly, but not closely punctured; anterior angles broadly rounded, sides sinuate, posterior angles strongly produced and divergent. Elytra at base slightly narrower than thorax; one-half longer than wide, greatest width anterior to apical third; sides regularly curved to apex, margin distinct and rather strongly reflexed posteriorly; striæ regular and distinct, more deeply impressed at base; intervals irregularly, rather densely punctured, punctures confluent or linear, giving a strigate appearance in some lights. Abdominal segments shining golden green, punctate; punctures rather dense at sides, sparse at middle.

♂.—Ventral segments more coarsely punctured; third and fourth segments with large, but rather shallow foveæ near elytral margin.

♀.—Ventral segments more finely punctured; a small but deep fovea on either side of third ventral near posterior angles of segment. Length 11 mm.

Cascade Range, British Columbia; altitude 7000 feet. This species, by the structure of the antennæ, naturally falls into Group III of Dr. Horn (Trans. Am. Ent. Soc. vol. iii, p. 319). It is one of the many interesting captures of Mr. J. C. Weidt.

Elmis columbiensis sp. nov.—Elongate oval, shining black, sparsely pubescent. Thorax subquadrate, slightly wider than long, narrowed at front; arcuate and divergent to middle, then subparallel to base, which is strongly sinuate and slightly emarginate at middle; disc sparsely, but distinctly punctured, more densely toward margin; basal lines attaining the middle and limited by two densely punctured foveæ on either side of impressed median channel. Elytra at base slightly wider than thorax, humeri rounded, sides subparallel to apical third, then slightly sinuate and convergent to apex, which is broadly rounded and subtruncate. Elytral striæ deeply impressed, punctures large and rather distinct, intervals very feebly and finely punctate; fifth, sixth and seventh intervals costate. Elytral margin slightly testaceous; ventral segments feebly, but densely punctate, rather densely pubescent at sides. Legs dark testaceous, finely and lightly punctured. Length 2.6 mm.

Fraser River Valley, British Columbia; Mr. C. J. Weidt.

A truly dainty sportsman he,
The fields he never tries;
He takes scent bottles 'neath a tree
And squirts at butterflies.—*New York Herald.*

NOTE ON THE HABITS OF AMMOPHILA.

By S. W. WILLISTON, Lawrence, Kans.

Even the casual observer, to whom all insects are bugs, cannot help but be struck by the great diversity and number of the fossorial Hymenoptera of the plains. Water is often inaccessible, trees there are few or none, and only in places is the vegetation at all abundant. A much larger proportion of insects, hence, find it necessary to live or breed in holes in the ground, than is the case in more favored localities. Especially is this the case with the Hymenoptera, great numbers and many species of which thus breed in excavations made by themselves.

While packing specimens on an open space, uncovered by buffalo grass, in the extreme western part of Kansas, the early part of last July, the attention of a friend and myself was attracted by the numerous wasps that were constantly alighting upon the ground. The hard, smooth, baked surface showed no indications of disturbance, and it was not till we had attentively watched the insects did we learn what they were doing. The wasp is a very slender one, more than an inch in length, with a slender, pedicellate abdomen; it is known to entomologists as *Ammophila Yarrowi* Cres. They were so numerous that one was distracted by their very multiplicity, but, by singling out different individuals, we were enabled to verify each detail of their operations. An insect, alighting, ran about on the smooth, hard surface till it had found a suitable spot to begin its excavation, which was made about a quarter of an inch in diameter, nearly vertical, and carried to a depth of about four inches, as was shown by opening a number of them. The earth, as removed, was formed into a rounded pellet and carefully carried to the neighboring grass and dropped. For the first half of an inch or so the hole was made of a slightly greater diameter. When the excavation had been carried to the required depth, the wasp, after a survey of the premises, flying away, soon returned with a large pebble in its mandibles, which it carefully deposited within the opening; then, standing over the entrance upon her four posterior feet, she (I say she, for it was evident that they were all females) rapidly and most amusingly scraped the dust with her two front feet, "hand over hand," back beneath her, till she had filled the hole above the stone to the top. The operation so far was remarkable

enough, but the next procedure was more so. When she had heaped up the dirt to her satisfaction, she again flew away and immediately returned with a smaller pebble, perhaps an eighth of an inch in diameter, and then standing more nearly erect, with the front feet folded beneath her, she pressed down the dust all over and about the opening, smoothing off the surface, and accompanying the action with a peculiar rasping sound. After all this was done, and she spent several minutes each time in thus stamping the earth so that only a keen eye could detect any abrasion of the surface, she laid aside the little pebble and flew away to be gone some minutes. Soon, however, she comes back with a heavy flight, scarcely able to sustain the soft green larva, as long as herself, that she brings. The larva is laid upon the ground, a little to one side, when, going to the spot where she had industriously labored, by a few rapid strokes she throws out the dust and withdraws the stone cover, laying it aside. Next, the larva is dragged down the hole, where the wasp remains for a few minutes, afterwards returning and closing up the entrance precisely as before. This, we thought, was the end, and supposed that the wasp would now be off about her other affairs, but not so; soon she returns with another larva, precisely like the first, and the whole operation is again repeated. And not only the second time, but again and again, till four or five of the larvæ have been stored up for the sustainment of her future offspring. Once, while a wasp had gone down the hole with a larva, my friend quietly removed the door stone that she had placed by the entrance. Returning, she looked about for her door, but not finding it, apparently mistrusted the honesty of a neighbor, which had just descended, leaving her own door temptingly near. She purloined this pebble, and was making off with it, when the rightful owner appeared and gave chase, compelling her to relinquish it.

The things that struck us as most remarkable was the unerring judgment in the selection of a pebble of precisely the right size to fit the entrance, and the use of the small pebble in smoothing down and packing the soil over the opening, together with the instinct that taught them to remove every evidence that the earth had been disturbed.

Lepidoptera of the Adirondack Region of the State of New York.

By CHAS. S. MCKNIGHT, Saratoga Springs, N. Y.

The late W. W. Hill, of Albany, N. Y., made extensive collections of Lepidoptera in Lewis County in this State, and lists of his captures are to be found in several publications.*

In addition to those therein enumerated I would add the following species taken by myself at Saranac Lake, Franklin Co., N. Y.; elevation, 1500–1600 feet. Light and sugar were both employed. In the early Spring, while the ground was still covered with snow, many of the hibernating forms were taken in sugar camps at rest on the trees or from the sap pails.

Thyreus Abbotii *Swains.*, light, July. Sphinx kalmiæ *S.* & *A.*, light, July. S. drupiferarum *S.* & *A.*, light, June. S. gordius *Cram.*, light, July. S. luscitiosa *Cram.*, rare, July. Ellema coniferarum *S.* & *A.*, larvæ, September. Alypia octomaculata *Hbn.*, bred, June. A. Langtonii *Coup.*, rare, June. Eudryas grata *Fab.*, light, July. Clemensia albata *Pack.*, light, June. Lithosia candida *Hy. Edw.*, light, July. Crocata brevicornis *Walk.*, light, July. C. rubicundaria *Hbn.*, light, July. Arctia virguncula *Köy.*, light, July. Adoneta spinuloides *H. S.*, light, June. Ichthyura inclusa *Hbn.*, light, June. Gluphisia trilineata *Pack.*, rare, light, July. Notodonta stragula *Grt.*, light, June. Phœsia rimosa *Pack.*, rare, light, July. Cœlodarys biguttata *Pack.*, light, July. Lophopteryx elegans *Strk.*,† ♂, light, June. Heterocampa manteo *Doub.*, rare, light, June. H. biundata *Walk.*, light, June. H. cinerea *Pack.*, light, June. Samia cecropia *Linn.*, bred, June. Telea polyphemus *Cram.*, bred, June.

---

* Thirteenth Annual Report of the N. Y. State Museum of Natural History, 1879.
Seventh Annual Report on the Topographical Survey of the Adirondack Region of the State of New York, Colvin—Albany, 1880.
"Papilio," iii, p. 27.

† Determined by H. Strecker. In Prof. J. B. Smith's "Check List," 1891, *Notodonta notaria* Hy. Edw. (described in "Entomologica Americana," i, p. 17) taken in Colorado by David Bruce, is given as a synonym of the above. In the Colorado specimens the primaries are described as being of an "even mouse color." In the Adirondack example they are suffused from base to subterminal space and below apex, with brownish fawn, darkest along the costa and gradually fading toward the outer margin into the color of the western form. I am unaware of any previous report of the capture of this species in the east.

NOCTUIDÆ.

Leptina Doubledayi *Gm.*, light, June. L. ophthalmica *Gm.*, light, June. Demas flavicornis *Smith*, light, June. Momophana Comstockii *Grt.*, light, May 19. Agrotis attenta *Grt.*, light, July. A. ochrogaster *Gn.*, sugar, July and August. A. cinereomaculata *Morr.*, sugar, July and August. A. lubricans *Gn.*, sugar, August. A. velleripennis *Grt.*, sugar, August. A. alternata *Grt.*, sugar, August. A. badinodis *Grt.*, sugar, July and August. A. catharina *Grt.*, sugar, August. A. salicarum *Walk.*, at sap, April. Barathra curialis *Smith*, light, June. Hadena ducta *Grt.*, sugar, July. H. fimbrina *Gn.*, sugar, August. H. fractilinea *Grt.*, sugar, August. H. impulsa *Gn.*, sugar, August. Oligia arna *Gn.*, sugar, August. Dipterygia scabriuscula *Linn.*, sugar, August. Tricholita semiaperta *Morr.*, sugar, August. Helotropha reniformis *var.* atra *Grt.*, sugar, June. Arzama diffusa *Grt.*, sugar, June. Platysenta atriciliata *Grt.*, sugar, July. Tæniocampa alia, sap pails and sugar, April and September. T. subterminata, sap pails and sugar, April and September. T. peredia, sugar, September. Homoglæa hircina *Morr.*, sugar, April. Himella thecata *Morr.*, sugar, September. Scopelosoma Pettiti *Grt.*, sap pails and sugar, April and September. S. Morrisoni *Grt.*, sap pails and sugar, April and September. S. devia *Grt.*, sap pails and sugar, April and September. S. Walkerii *Grt.*, sap pails and sugar, April and September. S. lidus *Gn.*, April and September. Scoliopteryx libatrix *Linn.*, sugar, June. Xylina Bethunei *G. & R.*, sap pails, April. X. laticineria *Grt.*, sap pails, April. X. fagina *Morr.*, sap pails, April. X. Thaxteri *Grt.*, sap pails, April. Morrisonia vomerina *Grt.*, sugar, June. Calocampa curvimacula *Morr.*, sap pails, April. C. cineritia *Morr.*, sap pails, April. C. cineritia *var.* thoracica *Put.-Cram.*, April. Crambodes talidiformis *Gn.*, sugar, July. Aletia argillacea *Hbn.*, sugar, July. Abrostola urentis *Gn.*, sugar, August. Plusia striatella *Grt.*, light, July. Alaria florida *Gn.*, light, July. Erastria apicosa *Harv.*, sugar, July. Euclidia cuspidia *Hbn.*, sugar, June. Syneda graphica *Hbn.*, light, July. S. adumbrata *Behr.*, light, July. Homoptera *var.* lunata *Dru.*, sugar, August. H. unilineata *Grt.*, sugar, August. H. Woodii *Grt.*, sugar, September. Catocala gracilis *Edw.*, sugar, August. C. retecta *Grt.*, sugar, August. C. antinympha

Hbn., sugar, August. C. piatrix *Grt.*, sugar, August. Parthenos nubilis *Hbn.*, sugar, August. Pseudanthrœcia coracias *Gn.*, sugar, September. Argillophora furcilla *Grt.*, sugar, September. Homopyralis discalis *Grt.*, sugar, August. Pangrapta decoralis *Hbn.*, sugar, June. Pityolita pedipalalis *Gn.*, light, July. Philometra longilabris *Grt.*, light, July. Megachyta lituralis *Hbn.*, light, July. Spargaloma sexpunctata *Grt.*, light, July. Capis curvata *Grt.*, light, July. Herminia morbidalis *Gn.*, light, August. H. petrealis *Grt.*, light, August. Renia restrictalis *Grt.*, light, June. Heterogramma rurigena *Grt.*, light, June. Bomolocha baltimoralis *Gn.*, light, June. B. bigugalis *Walk.*, light, June. B. albalinealis *Walk.*, light, July. Tortricodes bifidalis *Grt.*, light, June.

GEOMETRIDÆ.

Eudropia effectaria *Walk.*, June. Boarmia crepuscularia *Tr.*, June. Therina eudropiaria *G. & R.*, May. T. semimendaria *Walk.*, May. Lobophora vernata *Pack.*, May. L. anguilineata *Grt.*, May. Chœrodes climataria *S. & A.*, June. Aplodes latiaria *Pack.*, June. Orthofidonia exornata *Walk.*, June. Metanema carnaria *Pack.*, June. M. inatomaria *Gn.*, June. Caberodes confusaria *Hbn.*, June. Corycia semiclarata *Walk.*, May. Azelina hubnerata *Gn.*, June. Acidalia inductata *Gn.*, June. Plagodis alcovlaria *Gn.*, June. Fidonia notataria *Walk.*, June. Petrophora populata *L.*, May.

By a comparison of these lists it will be evident that this region affords a rich field for collecting. Many additional species, and possibly new forms, may yet be discovered, especially when we consider that the insect fauna of the mountainous portion is still practically unknown.

NOTES UPON LARRADÆ.

By Wm. Hampton Patton, Hartford, Conn.

LIRIS.

This genus, founded upon a male type with peculiar tarsi, may be characterized as follows: Mandibles not dentate without, but with a shallow median notch; ♀ mandibles dentate within, ♂ mandibles not dentate within. Marginal cell pointed, not appendiculate, reaching as far as third submarginal cell. Ocelli and metathorax as in *Tachytes*.

Liris coxalis n. sp.—Clypeus rounded and somewhat produced at apex; fore coxæ of male separated by two slender processes of prosternum, of female contiguous. Length about one inch; Florida. Black; mandibles, except apical third, tawny; tarsi, at least in the middle, brown. Face with tawny pile; posterior tibiæ of ♀ and anal valve of ♀ with brown hairs, anal valve of ♂ silvery; thorax and first segment with pale hairs; ♀ apex of segments one and two, ♂ apex of segments one, two and three, silvery. Tegulæ and wings pale ferruginous, apical third fusco-violaceous. Resembles *Tachytes elongatus* Cr. in coloration, and is but little longer.

TACHYSPHEX.

Represented in this country by *Larra analis* Fab.; it is scarcely a distinct genus. It differs from *Larra* only in the hind ocelli being oval, and the metathorax resembling *Lyroda*. Other sections of *Larra* and *Tachytes* have as good a claim to a generic name.

LARROPSIS n. gen.

LARROPSIS TENUICORNIS (*Larrada tenuicornis* Smith) Type. Second submarginal cell petiolate. Resembles *Ammosphecidium* in many characters, but differs in many others. I have taken this species in Connecticut and upon the calyx nectar-glands of *Tecoma* in Virginia.

LYRODA SUBITA Say.—This species is peculiar for its non-fossorial tarsi, and may belong to *Didineis* (nec *Alyson*). Its method of carrying *Nemobius*, which it catches to feed its young, is interesting. It holds the cricket by clasping the base of the antennæ between its mandibles and clypeus, the minute teeth here preventing the antenna from slipping—this explains the use of the teeth on clypeus.

BOTHYNOSTETHUS = PISONITUS Shkd. = SILAON Picc.

Tachytes cælebs Pttn. is ♂ of T. ABDOMINALIS.

Larra divisa Pttn. is ♀ of L. ÆTHIOPS Cress.

TACHYTES MANDIBULARIS Pttn.—This species is common in Hartford, forming hillocks, three or four inches in height and the same in breadth of base, upon sidewalks and lawns about September first. It stores up *Xiphidium* for its brood.

Equatorial Africa promises another treasure to civilization. It is a much scented plant, the branches of which carried about the persons will frighten away mosquitoes.—*Philadelphia Record.*

A CONTRIBUTION TO THE ODONATA OF MAINE.—II.

Specimens taken near Orono, Penobscot County, Me., 1891.

By F. L. HARVEY, Orono, Me.

(Continued from Vol. II, Nos. 3 and 4, 1891.)

Tribe I.—AGRIONINA.

Subfamily 1.—CALOPTERYGINA.

1. *Calopteryx maculata* Beauvois.—Though very abundant last year, was very scarce this season. Specimens were taken, June 13th, in swamps in deep woods, but we visited the locality about the same date where they were abundant last season, but took none. Can it be that this species requires more than one season to transform?

2. *C. æquabilis* Say.—This species seems to be scarce; took a single specimen June 13th.

Subfamily 2.—AGRIONINA.

4. *Argia putrida* Hagen.—Specimens taken June 20th, over roads.

6. *Ischnura verticalis* Say.—Taken June 13th, but no orange forms observed until July 22d, when they were common, but were not observed mating.

8. *Enallagma Hageni* Walsh.—Taken June 13th and 20th, and July 22d.

39. *Enallagma signatum* Hag.—July 23, 1891, Chemo Stream near the lake; quite abundant. As many as fifty seen in patches of *Juncus* and over lily pods. We were botanizing with some friends, and had time to take only five specimens. We went to the locality July 28th, and not a single specimen could be found. There had been a heavy rain between the dates. Hagen gives the habitat of this species as Georgia and Louisiana.* Mr. Calvert writes that it occurs about Philadelphia, Pa. To find it abundant so far North is certainly interesting.

40. *Enallagma pollutum* Hag.—July 23, 1891, Chemo Stream with the above, but not so abundant. Several seen, however, but only three taken. On July 28th a single specimen was seen and taken. This species is recorded only from Florida (Hagen, 1861, p. 84) so far as we know. To find this southern species so far North, and no intermediate localities, is, indeed, remarkable.

* Baron de Selys (1876) adds Maryland and Illinois.—P. P. C.

Tribe II.—ÆSCHNINA.

Subfamily 3.—ÆSCHNINA.

17. *Æschna* (*Basiæschna*) *Janata* Say.—Reported from College collection, but taken this season, July 6th and 12th, Orono and Chemo Stream.

41. *Æschna* (*Fonscolombia*) *vinosa* Say.—July 12th and 28th, two females taken on window-screen in the evening. They seemed to be attracted by the light.

Subfamily 4.—GOMPHINA.

22. *Gomphus exilis* Selys.—Reported from College collection, but taken this season in abundance at Orono along the border of woods, June 20th.

23. *Gomphus spinosus* Selys.—Reported from College collection, but taken June 15th this season at Orono over a swamp.

42. *Gomphus brevis* Selys.—June 20th; border of woods, ♂ and ♀. One specimen, ♂, differs from the type by being larger; absence of the small tooth at the rear of the eye near the occiput; the pterostigma dark brown instead of pale yellow, and the anterior femora entirely black instead of yellow below on the middle. Mr. Calvert, to whom the specimens were referred, says: "They differ somewhat from the original description, but as this was drawn up from a single ♂ from Schoharie, N. Y., and a single ♀ (with the last 7 abdominal segments wanting) from Port Neuf, Canada, the differences are perhaps only those of individuals." There is a single ♂ of this species in the collection of the late Anson Allen, of Orono, Me., but the exact locality is not given. This species is closely related to the following species which was taken along with it and *G. exilis* the same day at the same locality.

43. *Gomphus abbreviatus* Hagen.—June 20th, back of college woods. Several males and females; associated with the above. Orono, Me.

44. *Cordulegaster maculatus* Selys.—June 11th. Very abundant over Sunk Haze Stream, Greenfield, Me. The specimens were nearly all males, only one female was taken. They were following the stream up and down, and by our wading to the middle in a shallow place, were readily taken.

45. *Cordulegaster* (*Zoræna*) *diastatops* Selys.—A single ♂ of this species is in the collection of the late Mr. Anson Allen, of Orono, Me., and was taken in the vicinity of Orono.

(To be continued.)

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Owing to low subscription rate, "extras" will be charged for, and when they are wanted, it should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

TO OUR SUBSCRIBERS:—This number of the NEWS contains thirty-two pages, an illustration, a review of the literature for a month, identifications of insects for subscribers and free exchange notices. Do you appreciate all this? Do you realize that the price for which you get this is ridiculously low? This is all a labor of love for your benefit and to advance entomology. We tell you this because we are ambitious to make the NEWS a model entomological journal, but to do this we need your assistance and encouragement. If you want to see the NEWS grow and thrive you must do your part. Send us the names of all your entomological friends so that we may send them sample copies. Try and induce others to subscribe. We already have a large subscription-list, but we do not wish to stop where we are at present; we wish to produce an illustrated monthly magazine of entomology which will be the best of its kind in the world; but with all our gratuitous labors in such a good cause, we will fail without your assistance. Remember, that the time we devote to this work is stolen, and that it could be far more profitably spent if we considered pecuniary reward. We depend on you to see that it is not love's labor lost.—ED.

DURING the year 1890 an idea originated among the members of the Feldman Collecting Club which we think is destined to influence the future of entomology in this country and bear good fruit. The idea referred to was the excursion planned for the fourth of July, 1890, at Jamesburg, N. J., at which place the members of the entomological societies of Phila-

delphia, Brooklyn and New York met. Two of these excursions have been held, and accounts of them have been published in the ENTOMOLOGICAL NEWS and "Canadian Entomologist." Every entomologist knows what a stimulus it is to find some one else as interested in the study as himself, and what additional pleasure it is to have a companion on a collecting trip, with whom we can compare notes and show our interesting captures; and there is also a generous rivalry which induces us to put forth our best endeavors. At Jamesburg, students and collectors who had corresponded or known of each other for years, had the pleasure of becoming more intimately acquainted and a hearty hand-shake, and a pleasant chat and a comparing of notes was seen on all sides. Now what we propose, is to carry this idea farther and organize a National Association, to be composed of the different State organizations. The objects of such an association would be the encouragement of entomological studies, to bring about the acquaintance of those interested in entomology in each State, for the purpose of studying geographical distribution of insects, purposes of exchange, social collecting or field meetings, and for mutual encouragement. An annual dinner might be given and papers read and discussed by the members. Much progress has lately been made in entomology in this country, and its importance as a study is being more fully recognized as time goes by. We hope soon to see such an organization formed in every State and Territory in the Union, with its president, treasurer and secretary. The NEWS will be much pleased to hear of any State taking the initiative, and will gladly publish the name of its officers and members. Some time ago a prominent entomologist from a Western State visited us, and, in talking over matters of mutual interest, we found that he did not know of half those interested in entomology in his own State. Now, it should be the duty of the State secretary of the organization to keep a complete list of all entomologists in the State, with their addresses and order or orders in which they are interested, and send a printed copy to each member, and from time to time notify them of additional names. This article is only in the way of a suggestion, and many other interesting outcomes of the plan may appear and details carried out later on.—ED.

ROCKS.—An entomological friend, to whom I once sent a letter bristling with questions, replied, after a long silence, in explanation: "Remember it is about 999 times easier to ask questions than to answer them!" The questions and problems suggested by Messrs. Mason and Tough in ENTOMOLOGICAL NEWS, are easily asked or stated, but there the simplicity ends.

In an old country like Europe, where there is a large population, with many that are interested in Entomology, illustrated works such as those suggested are feasible, and are in existence. In some cases wealthy amateurs publish expensive works, beautifully illustrated, without hope or expectation of return; while in others, the comparative cheapness of reproductive methods allows of publications at a reasonable price, with a

less sumptuous illustration. In our country the number of those interested is so small, that publication must be at a loss even if the illustrations be of the least expensive character consistent with accuracy and definition. Photography will do much, but there are many species, especially among the moths, in which it can give us an outline, and in which it fails to give shades or even contrasts of color where the two colors affect the plate similarly. The orthochromatic plates help somewhat, but do not solve the problem entirely.

I think I can safely say that all of my colleagues in the work on the "List" would be willing to contribute to publications such as suggested, could they be ensured against financial loss—recompense they would not expect. I know of at least two monographic works that cannot be issued in the shape in which they were planned, simply because of the cost and the absolute hopelessness of getting back the outlay. No publisher will touch them, except at the authors' expense, and the authors are not wealthy. But, after all, are the "Rocks" so formidable, and would the illustrations really do much to advance the *study* of Entomology? Mr. Meyrick is opposed to all illustration of species because he thinks the figures will be used to identify specimens without recourse to the text for a knowledge of characters. While I do not agree with him fully, I think there is no reasonable cause for complaint where monographic works on a family are at hand, even if not illustrated. Of course it means study, but no one who is really interested will shirk study. That interest which goes only to the collection of specimens and naming them by pictures, without any further object, is scarcely worthy of much attention. We have books enough for those who want to study, and never have there been so many papers of a monographic character issued, as in the few years last past. The fact that our fauna is incompletely known is no objection to monographic work. A very serious trouble, however, which is really the greatest "Rock," is the fact that the publications that do exist, are usually not accessible, except in large cities, and often not then. Yet, even this trouble is gradually disappearing, and the newer publications, on which ENTOMOLOGICAL NEWS keeps its readers posted, largely render reference to older and more rare works unnecessary. Meanwhile, I will suggest that there is scarcely a specialist who will not gladly name for the collector such material as is sent him, or who will not give what aid is in his power to the young student. Finally, I will make a definite proposition: If three hundred and fifty subscribers could be obtained for a monograph of the Noctuidæ to be issued in monthly parts, each part to cost fifty cents, and to be illustrated by at least one quarto plate with necessary descriptive matter, I would agree to prepare such a work. Number of parts not stated.—JOHN B. SMITH.

THE special bulletin of the Massachusetts Agricultural College just issued contains an interesting account of the gypsy moth, *Ocneria dispar*, by Prof. C. H. Fernald. The State of Massachusetts is making a noble fight against this most destructive insect. Two years ago the State ap-

propriated $50,000 for this work; last year $50,000, and it has lately appropriated $75,000 for the work of the coming year. They are doing everything possible to disseminate a knowledge of this insect among the people, having published a special report, with colored figures, of the insect in its various stages. Prof. Fernald, in his interesting account, says that there is a statement in the second volume of the "American Entomologist," published in 1870, "that only a year ago the larva of a certain Owlet moth (*H. dispar*), which is a great pest in Europe, both to fruit and forest trees, was accidentally introduced by a Massachusetts entomologist into New England." He then gives an interesting account of its distribution, food-plants, enemies, how to destroy them, etc. This method of introduction should be a warning to entomologists. We have had sent to us from foreign countries living injurious insects packed in paste-board boxes which were partly crushed in the mails and in the best possible condition for naturalization.

Mr. CHAS. DURY, in vol. xiv, p. 183 of the "Cincinnati Journal of Natural History," gives an interesting account of the inhabitants of a field mouse nest: "I went to an old orchard, and under the first log rolled over I discovered a nest, and secured a mouse as she rushed out. She proved to be the 'short-tailed meadow shrew,' *Blarina brevicauda* (Say). I lifted the nest into the sifting-net and sifted it over a sheet of white paper, and was overwhelmed at the result. The fine débris was a jumping, crawling mass of insect life: beetles, fleas, ticks and larvæ. There were over a hundred large, vicious-looking fleas, most energetic biters. How the mouse could live in such a den is a mystery. There were 107 *Leptinus testaceus*. The other beetles associated with the *Leptinus* were Staphylinidæ, or 'rove' beetles of species new to me."

Mr. THOS. E. BEAN contemplates collecting during the Summer of 1892 on the mountains of the central range in the vicinity of Laggan and Hector (Can. Pacif. Railway), at summit of Kicking Horse Pass, and in the most accessible part of the Bow Valley. He will give particular attention to alpine work, and collect all orders of insects.

IN the March number of the NEWS, on page 70, there appeared a short article put in by the printer to fill out the page, and he neglected to label it "Newspaper Entomology." This describes a most curious hybrid insect (probably hybrid between a tarantula and a scorpion) which stings and bites with one end and stings with its tail at the other. If it were not stated that the insect was a spider we would think the Doctor specialist who treated the sting or bite, had a scorpion in his mind. It is very doubtful whether a scorpion can sting itself in the back as the sting points the wrong way for this manoeuver. We see many curious insects described in the daily press, and one we described in the NEWS turned out to be a new genus and species (*Electricia tomfooleryensis*), vol. ii, p. 54.

Mr. PHILIP LAURENT, of Philadelphia, thinks of going to Colorado on a collecting trip, during the coming season.

Prof. C. H. FERNALD is writing a descriptive work on the Microlepidoptera, to be entitled "Manual of the Microlepidoptera of N. America" This will be a very important contribution to the subject, and should greatly increase the number of persons interested in this department of Lepidoptera. Prof. Fernald will be his own publisher.

TRANSACTIONS of the American Entomological Society, vol. xix (1892). —Pages 25-40 inclusive, have been printed since our last issue, containing the conclusion of Dr. Horn's "Study of Amara, s. g. Celia," and the first pages of his "Random Studies of North American Coleoptera."

PREVENTION OF THE PEACH YELLOWS AND ROSETTE, AS CAUSED BY THE YELLOWS MITE.—The Peach Yellows is caused by the mite *Briobia pratensis*, as noted by me in ENT. NEWS for December, 1891. Its orange-colored eggs cover the bark in Winter. The mite is also destructive to grass and clover, as noted in "Insect Life" for September, 1890. The Peach Rosette is an after effect of the Yellows, hence the cause is the same. Trees rarely live more than a year after the mites attack them. The mites are classed among those that spin silk, and are readily transported from tree to tree by the wind carrying them upon their silken webs. It has been recommended to root up infested trees, and New York State has a law requiring it, but the discovery of the cause of the Yellows will require a modification of the law, as other remedies may be easily applied. Carbolic soap washed upon the trunks and twigs in Winter will readily destroy the mite eggs, and whitewash similarly applied will also be a good preventative. A spraying of kerosene emulsion, or of pyrethrum in solution, upon the affected trees would also destroy the mites. An investigation of the hatching of the eggs in Spring is needed. The orange-colored mites in contrast with the green of the leaves produces the yellow tint giving rise to the name of the disease.—W. H. PATTON.

PASSENGERS on the Ninth Avenue elevated road, New York, have watched for the past three years a sightly pile slowly growing into shape in Manhattan Square. Those who did not know already what the building was, easily learned from their neighbors that it was the new addition to the Museum of Natural History. On the fifth floor will be arranged the ethnological and entomological collections. The recent additions to the latter are many. Among them are the Elliot collection of New York butterflies, presented by the widow of Mason S. Elliot, of Brooklyn. It contains 30,000 specimens. Her husband's collection of 10,000 volumes of natural history was part of the gift. The Angus collection of 14,000 moths and butterflies is another new exhibit. Of Catocalæ alone, Mr. James Angus informed me that there were over 1100 specimens, the labor of forty years' collecting, and that he never took any at sugar.

R. E. KUNZE.

MERISUS IN EUROPE AND IN AMERICA.—It seems probable that the importation of the European parasite of the Hessian Fly will result as unfortunately as did Prof. Riley's introduction, some years ago, of the

European *Apanteles* parasitic on the cabbage butterfly. In the latter case the only result was the discovery that the insect had been well known in America for fifty years past. So with the *Merisus*, there are no specific characters to separate *nigripes* from our well-known *M. destructor* (Say) and all the species referred to this genus in this country are synonyms. In fact the genus contains but one species. The subgenus *Homoporus* was founded upon dessicated or worn specimens, and the other subgenus named by Thomson was similarly founded upon imperfectly developed individuals. I have bred *M. destructor* Say from the chrysalids of *Orgyia leucostigma* at Hartford; an hitherto unknown host for the species, affording the peculiarity of many (often up to 100) flies emerging from one pupa, whereas in the Hessian Fly each pupa affords room for but one parasite.

WM. H. PATTON, Hartford, Conn.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Insects have been named for W. W. Newcomb, W. E. Longley, Geo. Miller, D. S. Harris, W. M. Hill, H. Caracciolo, H. C. Denslow, A. A. Wright, H. E. Weed, W. Metcalfe, A. Sheriff, Frank H. Johnson, A. G. Weeks, Jr.

Entomological Literature.

To those who can master the German language there is no work published in recent years which will give greater assistance to the student of Coleoptera than the "Coleoptera of Middle and Southern Europe," by Dr. L. Ganglbauer. The work is filled with useful tables, and abundantly illustrated by well-executed wood-cuts of details, which will be found extremely useful. It would be difficult to make any adverse criticism, except that based on purely personal opinion, and to this extent his method of separating the tribes of Carabidæ seems not that which will enable the student to make the most certain progress. The first volume, containing the Cicindelidæ, Carabidæ and Dysticidæ, is all that has thus far appeared.

ACTA SOCIETATIS PRO FAUNA ET FLORA FENNICA, vi, Helsingfors 1889-90.—Enumeration of the Brachelytrous Coleoptera of Finland: II. Pselaphidæ and Clavigeridæ,* J. Sahlberg (1889).

SCHRIFTEN DES NATURWISSENSCHAFTLICHEN VEREINS FUR SCHLESWIG-HOLSTEIN, viii, 2, Kiel, 1891.—Contributions to the insect fauna of Schleswig-Holstein, iv, v, W. Wuestnei.

COMPTE RENDU. SOCIETE DE BIOLOGIE (Paris), Jan. 29, 1892.—On a Stratyomid Dipter (*Beris vallata* Forster) imitating a Tenthrid (*Athalia annulata* Fabr.), A. Giard. The wandering cricket (*Schistocerca peregrina* Ohr.) and its changes of color, J. K. d'Herculais.—Feb. 5, 1892.—On a hemipter-heteropter (*Halticus minutus* Reuter) which ravages the arachid plantations in Cochin China, A. Giard.—Feb. 20, 1892.—Structure of an abdominal ganglion of *Melolontha*, A. Binet.

LE NATURALISTE (Paris), Feb. 1, 1892.—*Papilio machaon* L. and its different varieties, L. Austaut. Descriptions of new Lepidoptera,* P. Dognin.—Feb. 15, 1892.—The woody cecids of *Rubus*, E. Ballé, figs. Deformities observed in Coleoptera, L. Planet, figs.—March 1, 1892.—Descriptions of new Lepidoptera,* P. Dognin.

TERMESZETRAJZI FUZETEK xiv, Budapest, 1891.—Exotic Myriapoda in the zoological collection of the University of Heidelberg,* Dr. E. v. Daday, 1 pl. New Tenthredinidæ and Siricidæ,* A. Mocsary.

ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, vi, 1-4, New York, 1891.—Coleopterological notices, T. L. Casey.

ENTOMOLOGISCHE NACHRICHTEN (Berlin), xviii, 2, January, 1892.—New Histeridæ (Coleoptera),* J. Schmidt. On the occurrence of halophilous *Saldae* in Lorraine, J. J. Kieffer.—3. February, 1892. Notes on the beetle fauna of Brunswick, Dr. K. M. Heller. Ichneumonid and Tryphonid studies, Dr. Kriechbaumer. The Zoocecidæ of Lorraine iii, J. J. Kieffer.

OUTLINES OF ENTOMOLOGY.—Prepared for the use of farmers and horticulturists, at the request of the secretary of the State Board of Agriculture and the State Horticultural Society of Missouri. By Mary E. Murtfeldt, Kirkwood, Missouri. Jefferson City, Mo. Tribune Printing Co., State printers and binders, 1891. Pp. ii, 132, iii, 48 wood-cuts. This elementary work describes the structure of insects in general, after which each order is separately considered as regards its various groups with their chief characteristics and habits.

A List of some of the catalogues and local lists of North American Coleoptera.—I. (A-G) II. (H-P) III. (R-Z) By John Hamilton and Samuel Henshaw (Psyche, October, December, 1891; January, 1892).

---

* Contains new species other than North American.

BULLETIN DE LA SOCIETE PHILOMATHIQUE DE PARIS (8), iii, 4, 1891.—Contributions to the embryogeny of the Chalcidians, preliminary note, L. F. Henneguy, figs.

ZOOLOGISCHER ANZEIGER (Leipzig), Feb. 1, 1892.—To the knowledge of the biological relations between host and parasitic bee-larvæ, C. Verhoeff. On the American Intermediate Host of *Echinorhynchus gigas*, C. W. Stiles [*Lachnosterna*].—Feb. 15, 1892.—Self-mutilation among grasshoppers, F. Werner. To the knowledge of cone-lice (*Lachnus*), N. Cholodkovsky.

ANNALS AND MAGAZINE OF NATURAL HISTORY (6), ix, 50, February, 1892.—Descriptions of new genera and species of Pyralidæ contained in the British Museum collection,* W. Warren.

COMPTE RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE, Jan. 8, 1892. [misprinted 1891] New species of Heterocera from the Dutch East Indies,* F. J. M. Heylaerts. The Coccinellidæ of Chota-Nagpore,*† J. Weise. List of the Hemiptera of Belgium: II. Homoptera, E. Coubeaux.

SEVENTEENTH REPORT OF THE STATE ENTOMOLOGIST on the Noxious and Beneficial Insects of the State of Illinois. By S. A. Forbes, Springfield, Ill., 1891. Pp. 90, 36, ix., 7 pls. 1 portrait of Wm. LeBaron.

REVUE SCIENTIFIQUE DU BOURBONNAIS II, 2, Moulins, February, 1892, *Bittacus tipularius*, R. Martin.

TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY, xix, 1. Philadelphia, Feb., 1892.—Studies in Chrysomelidæ, G. H. Horn, M.D.

BRITISH NATURALIST (London), February, 1892.—Portrait of H. T. Stainton. Preliminary list of Hymenoptera-Aculeata of Lancaster and Cheshire, W. Gardner. Dragonflies, F. Milton.

ENTOMOLOGY FOR BEGINNERS. By A. S. Packard, M.D., Ph.D. Third edition. Revised. New York, Henry Holt & Co., 1890. Pp. xvi, 367, 273 figs.

ENTOMOLOGISK TIDSKRIFT (Stockholm), xii, 1, 2, 1891.—New Brazilian species of scorpions,*† T. Thorell, 1 pl. New Longicorn Coleoptera,*† C. Aurivillius, figs.; and papers in Swedish on Scandinavian insects.

PROCEEDINGS U. S. NATIONAL MUSEUM xiv, 881, Washington, 1892.—The biology of the Hymenopterous insects of the family Chalcididæ, L. O. Howard.

SPECIAL RRPORT OF THE STATE BOARD OF AGRICULTURE, Boston, 1892.—On the work of extermination of the *Ocneria dispar* or gypsy moth by C. H. Fernald, 26 pp. 6 pl.

ATTI D. REALE ACCADEMIA DEI LINCEI (Rome), Rendiconti, Jan. 17, 1892.—On Termite societies, B. Grassi.

---

* Contains new species other than North American. † Contains new genera.

JOURNAL OF THE INSTITUTE OF JAMAICA (Kingston), i, 2, Feb., 1892.—A Tachinid bred from *Protoparce Jamaicensis* Butl. in Jamaica, C. H. Tyler Townsend. A first contribution to the entomology of Bath, Jamaica, T. D. A. Cockerell. The larva of *Danais Jamaicensis* Bates, C. B. Taylor.

IOWA AGRICULTURAL EXPERIMENT STATION, Bulletin No. 15.—Des Moines, November, 1891. Reports on injurious insects, H. Osborn and H. A. Gossard.

ENTOMOLOGIST'S MONTHLY MAGAZINE (London), March, 1892.—On the origin of ants' nests, W. W. Smith. Notes on the synonymy of several West-African Lycænidæ, H. H. Druce. Another addition to the British fleas, E. Saunders. Synonymical notes on Cynipidæ and Formicidæ, P. Cameron. Migrations and new localities of some Coccids, W. M. Maskell. Annotated list of British Tachiniidæ,* R. H. Meade. Neuroptera of the Channel Islands, W. A. Luff, R. McLachlan. The butterflies of Rawal Pindi and the Murree Hills (Punjab), N. Manders. Notes.

MEMORIAS Y REVISTA DE LA SOCIEDAD CIENTIFICA "Antonio Alzate," v, 3 and 4, Mexico, 1892.—General protective resemblance in the Mexican Lepidoptera of the genus *Ithomia*, Prof. A. L. Herrera.

COMPTE RENDU. ACADEMIE DES SCIENCES (Paris), Feb. 22, 1892.—Structure of the larval nervous system of *Stratiomys strigosa*, F. Henneguy and A. Binet.

VERHANDLUNGEN DER K. K. ZOOL.-BOTAN. GESELLSCHAFT IN WIEN, xli, 3, 1891.—New Termitophilous insects, with a review on Termite guests,*† E. Wasmann, 1 pl.—4, 1891. On the grasshopper swarms in Algeria, Dr. C. B. v. Wattenwyl. Descriptions of new varieties of Bombycidæ from Syria, A. Rogenhofer. Swimming butterflies, Dr. S. Klemensiewicz.

BULLETIN OF THE AGRICULTURAL EXPERIMENT STATION OF THE UNIVERSITY of Tennessee, iv, 3, July, 1891, Knoxville, Tenn.—The true bugs or Heteroptera of Tennessee, H. E. Summers, figs.

CANADIAN ENTOMOLOGIST, March, 1892.—Miscellaneous notes on butterflies, larvæ, etc., W. H. Edwards. *Pamphila manitoba* Scud. and its varieties, H. H. Lyman. New species of Pyralidæ, G. D. Hulst. Notes on N. American Tachinidæ, etc., v, C. H. T. Townsend. Getting butterfly eggs, W. G. Wright. *Amblyopone pallipes* Hald., W. H. Harrington.

THE ENTOMOLOGIST (London), March, 1892.—*Ephestia kuhniella* R. Adkin. Entomological pins, Dr. D. Sharp. *Arctia caja*, J. Arkle. Notes on the synonymy of Noctuid moths, A. G. Butler. Coleoptera from Central China and the Korea,* Rev. H. S. Gorham. Notes, etc.

SITZUNGS-BERICHT D. GESELLSCHAFT NATURFORSCHENDER FREUNDE ZU BERLIN, Jan. 19, 1892.—Insect remains from the peat strata of Klinge, H. Schaeff.

* Contains new species other than North American. † Contains new genera.

NEW SPECIES OF NORTH AMERICAN INSECTS DESCRIBED IN THE PRECEDING LITERATURE.

MYRIAPODA.

Spirostreptus flavocingulatus Daday, Termeszetrajzi Fuzetek xiv, p. 137, tab. vii, fig. 4, Calif. *Rachis californicus*, p. 142, tab. vii, fig. 12, Calif. *Scolopendra viridilimbata*, p. 148, N. Am.

LEPIDOPTERA.

Pyralidæ: *Monocona* n. gen. Warren, Ann. and Mag. N. H. (6), ix, p. 173. *M. rubralis* id., p. 174, Calif. *Mimoschinia* n. gen. p. 174; type *Botys thalialis* Wlk. *Noctuelia flavifimbrialis*, p. 174, Calif. *Aporodes versicolor*, p. 175, Washington. *Pyrausta coccinia*, p. 176, Calif. *Syllythria subricalis*, p. 177, Calif. *Myelois fructetella* Hulst, Can. Ent. xxiv, p. 59, Ariz., Tex. *M. elegantella*, p. 59, Washington. *M. texanella*, p. 60, Tex. *M. leucophaeella*, p. 60, Iowa. *Acrobasis cirroferella*, p. 60, Tex. *Salebria levigatella*, p. 61, Mass., Wis. *S. purpurella* p. 61, N. Mex. *Zophodia bella*, p. 61, Mass. *Ocala* n. gen. p. 61. *O. dryadella*, p. 61, Fla. *Diviana nymphaeella*, p. 62, Fla. *Chipeta* n. gen., p. 62. *C. perlepidella*, p. 62, Fla. *Lipographis subosseella*, p. 62, Bahamas, W. I. *Paralipsa decorella*, p. 63, N. Y., Ont. *Loxostege baccatalis*, p. 63, Tex.

Papilio Hollandii Edwards, Can. Ent. xxiv, p. 50, Col.

HEMIPTERA.

Halticus Uhleri for *H. minutus* Popenoe (preoc.), Giard, C. R. Soc. Biol. Paris (n. s.), iv, p. 81.

Aspidiotus articulatus Cockerell, Journ. Ins. Jam. i, p. 54, Jamaica, Barbadoes.

COLEOPTERA.

Casey, Ann. N. Y. Acad. Sci. vi, pp. 9–214, describes 3 n. sp. of Cucujidæ; 1 n. sp. Elateridæ; 3 Scarabæidæ; 6 n. gen., 46 n. sp. Cerambycidæ; 2 n. gen., 54 n. sp. Cistellidæ; 1 n. gen., 7 n. sp. Meloidæ; 28 n. sp. Curculionidæ; from all parts of U. S.

Euryscopa pusilla Horn, Trans. Am. Ent. Soc. xix, p. 16, Tex. *E. subtilis* p. 17, Calif. *Amara Belfragei*, p. 19, Tex. *Saxinis politula*, *speculifera* p. 10, Calif. *Coscinoptera seminuda*, p. 13, Ariz.

DIPTERA.

Masicera protoparcis Townsend, Journ. Ins. Jam. i, p. 70, Jamaica.

Blepharipeza exul Townsend, Can. Ent. xxiv, p. 64, N. H. *Gonia sagax*, p. 65, Iowa. *Pseudogonia ruficauda*, p. 66, S. Dak. *Plagia aurifrons*, p. 67, Pa. *Trixia gillettei*, p. 68, Col. *Miltogramma kansensis*, p. 68, Kan. *Metopia Luggeri*, p. 69, Minn. *Thryptocera americana*, p. 69, D. C.

Doings of Societies.

A REGULAR MEETING OF THE ENTOMOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES was held February 25th. Meeting called to order at 8.30 P.M., Dr. Horn, director, presiding. Members present: Ridings, Skinner, Martindale. Associates: Calvert, Johnson, Nell and Fox. Mr. Calvert presented the third lot of European Odonata, twelve specimens of *Gomphus*, which makes the representation of this genus pretty full. Dr. Horn presented thirty-six specimens of Coleoptera from Mexico, being lot No. 2. Specimen of *Triptogon occidentalis* presented by H. Skinner. Fifteen species of Tachinidæ; twenty-one specimens by C. H. Tyler Townsend. These are type specimens, and will make a valuable addition to the collection of Diptera. Mr. Calvert exhibited drawings representing the neuration in his new genus of dragonflies, *Ortholestes* and two allied genera of *Agrionina*. He pointed out the generic differences as shown by variation in the neuration. It was also stated that Dr. Karsch had recently described a new genus of AGRIONINA, *Neuragrion* from Ecuador, and the speaker pointed out the characters on which the genus was based. The capture of a specimen of *Pantala flavescens* was reported from Fairmount Park. Dr. Horn spoke of the mechanism of the veins in NEUROPTERA, in reference to their utility in flight, and in regard to the strength of the wing. The subject was further discussed by Messrs. Horn, Calvert and Martindale. The director announced the death of Henry Walter Bates on February 17th. Messrs. C. W. Johnson and Charles Liebeck were proposed for membership. HENRY SKINNER, *Recorder*.

THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, Feb. 4, 1892.—Under the head of short notes, Mr. Ashmead made some interesting remarks on *Eunotus*, a peculiar chalcid genus, new to the United States. It was his opinion that it belonged to the subfamily Aphelininæ. Dr. Stiles noted a report that a man in Germany had been bitten by the common house fly and died within twenty-four hours. Much discussion followed, throwing considerable discredit upon the story. Mr. Banks exhibited a male specimen of *Loxosceles* which had but six developed legs. Dr. Marx exhibited a peculiar Theridid spider which had extremely long mandibles. Dr. Stiles made some instructive remarks on a liver-fluke story that was circulating in certain papers. According to this story the young stages of the liver-fluke were passed in the house-fly, whereas they are passed in snails. Mr. Mally read a paper on "An Insectivorous Primrose." He drew attention to the fact that *Œnothera speciosa* captured a small Dipterous insect upon its gummy style and stigma. But one species was seen trapped. As the insect could not be eaten by the plant the author thought that the insects must, in some way, aid the fertilization of ovules. Discussed by Messrs. Ashmead, Test, Schwarz, Marx, Howard, Stiles and Marlatt. Mr. Howard contributed an important paper on

"Spider Parasites," being a complete revision of our knowledge of these interesting insects, both European and American. Lists and breeding notes were given and specimens exhibited. He also called attention to the habits of *Mantispa* and some Acroceridæ, which, in Europe, are known to be parasitic on spiders. Discussed by Messrs. Ashmead, Marlatt, Test, Schwarz, Fox and Marx. Dr. Stiles made a few remarks on the various Nematode genera parasitic on spiders. Dr. Marx made a few additions to his paper on ticks. Prof. Summers was invited to speak, and made some instructive remarks on collecting and labeling.

NATHAN BANKS,
Recording Secretary.

CYNIPS Q-GLOBULUS Fitch.—The galls of this species I have found upon the European oak, *Q. pedunculata*, planted in Hartford, Conn. From them I have reared a small inquilinous Cynipid and a species of *Callimome*.

WM. H. PATTON.

THYNNUS IN CALIFORNIA.—This genus has not hitherto been found north of the Equator in either hemisphere, nor has any of the family Thynnidæ. A specimen received from Dr. F. E. Blaisdell from Poway, San Diego County, Cal., is the first intimation of its occurrence in North America. It is a small black species with hyaline wings, and may be named *Thynnus californicus*.—W. H. PATTON.

OBITUARY

ROBERT BUNKER died at his home in Rochester, N. Y., March 6th, aged seventy-one years. He was a native of Columbia County, New York. When five years of age his parents removed to Rochester and took up their residence on the site where he died. Mr. Bunker was a cooper by occupation, but spent all his spare time making entomological collections and a few years ago presented his collection to the Academy of Science at Rochester, of which institution he was a charter member. He contributed occasional papers to the "Canadian Entomologist," and to ENTOMOLOGICAL NEWS; these showed that he was an acute observer of insect life. He was, personally, a man of strong traits of character; upright and honorable in every relation of life; broad-minded, yet positive in his opinions: genial and courteous in his intercourse with friends and neighbors. His death will be sincerely mourned by his entomological friends, and by the community in which he lived.

ENTOMOLOGICAL NEWS for March, was mailed March 1, 1892.